

# Durham-Chapel Hill-Carrboro Metropolitan Planning Organization

## *Targets for the 2045 LRTP*

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### What are the Targets?

The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) has selected eight performance measures from the MPO's Goals/Objectives/Performance Measures to demonstrate in a brief manner the extent to which the adopted 2045 Metropolitan Transportation Plan (2045 MTP) meets the MPO's Goals. The MPO has set Target values for these selected performance measures, mostly using measurements from the Triangle Regional Model (TRM - the region's travel demand model) and uses values for just the MPO, not the entire region.

The Targets were selected because they are broad measurements and the data is available and relatively reliable. This document also identifies the reasons the Target is important and what changes need to be made in land use, transportation and other policies to meet the Target.

### What is the Guide Data?

The Targets have Guide Data for two scenarios to help set the Target values:

- 2015 – This is the current condition. It is the 2015 population and employment using the 2015 transportation network (e.g., highways and transit service). This is the 2015 column and value in the charts.
- 2045e+c – This is the 2045 population and employment using the existing transportation network plus any projects that are committed to being completed. This is the 2045e+c column and value in the charts.
- 2045 – This shows how a major transportation investment might affect the Target value. It is the 2045 population and employment using the 2055 transportation network, which is budgeted at over \$12 billion and includes passenger rail and managed lanes. This is the 2045 column and value in the charts.

### What is the Target Range?

There are three Target values -- Good, Better and Best. The use of more than one Target value helps to set a range of values that can be used for comparison.

### Additional Information

Additional information is available at the DCHC MPO's Web site – [www.dchcmpo.org](http://www.dchcmpo.org).

You can also contact: Andy Henry, (919) 560-4366, ext. 36419, [andrew.henry@durhamnc.gov](mailto:andrew.henry@durhamnc.gov)

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# ↑ Increase Percent of Work Trips by Auto Less than 30 Minutes

Why Increase Auto Mobility?	How to Increase Auto Mobility?	Trends and Targets														
<ul style="list-style-type: none"> <li>▪ <u>Connect People to Jobs</u> – Reduced commute times can increase job opportunities.</li> <li>▪ <u>Reduce Travel Costs</u> – Mobility Report concludes annual congestion cost is \$734 per peak auto commuter in Triangle.</li> <li>▪ <u>Reduce Travel Time</u> – TRM data shows travel time will double and triple in most major travel corridors without additional investments.</li> <li>▪ <u>Reduce Pollution</u> – Congestion reduces travel speed and increases pollution.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>Transportation</u> – Implement Congestion Management practices such as traffic signal synchronization and spot improvements at traffic bottlenecks.</li> <li>▪ <u>Transportation</u> – Increase highway, transit and other transportation mode capacity, especially along critical corridors.</li> <li>▪ <u>Transportation</u> – Use managed lanes to increase corridor capacity.</li> <li>▪ <u>Land Use</u> – Permit more mixed-use development.</li> <li>▪ <u>Policy</u> – Support TDM programs to reduce roadway congestion.</li> </ul> <p><u>Method:</u> From the Triangle Regional Model (TRM, the percent of work trips that are less than 30 minutes.</p>	<p>(Not actual data)</p> <div style="text-align: center;"> <p><b>% Auto Trips less than 30 minutes (Work Trips)</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year/Target</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>27%</td> </tr> <tr> <td>2045e+c</td> <td>44%</td> </tr> <tr> <td>2045</td> <td>28%</td> </tr> <tr> <td>Good</td> <td>20%</td> </tr> <tr> <td>Better</td> <td>22%</td> </tr> <tr> <td>Best</td> <td>25%</td> </tr> </tbody> </table> </div>	Year/Target	Percentage	2015	27%	2045e+c	44%	2045	28%	Good	20%	Better	22%	Best	25%
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# ↑ Increase Percent of Jobs within One-Quarter Mile of Frequent Bus Transit or One-Half Mile of Fixed-Guideway Transit

Why Increase Transit Access?	How to Increase Transit Access?	Trends and Targets														
<ul style="list-style-type: none"> <li>▪ <u>Provide opportunity</u> – Approximately 6% of households do not own a vehicle, and carless households have increased at twice the rate of other households.</li> <li>▪ <u>Reduce Congestion</u> – Congestion wastes time, fuel and money, and contributes to air pollutants. Transit use can help reduce roadway congestion.</li> <li>▪ <u>Support Personal Health</u> – Lack of exercise is a leading contributor to the obesity epidemic in the U.S. Transit use has shown to induce bicycling and walking trips.</li> <li>▪ <u>Reverse Transit Disinvestment</u> – Triangle transit investment lags behind comparable regions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>Transportation</u> – Increase transit investment.</li> <li>▪ <u>Land Use</u> – Permit more concentrated residential and employment development along key travel corridors that best support transit.</li> <li>▪ <u>Design</u> – Encourage transit-supportive scale, building orientation, connections, public spaces, parking, amenities and other design elements along transit corridors and station areas.</li> </ul> <p><u>Method:</u> Using geographic information software, the location of jobs is compared to the current and planned (2045 MTP) transit network.</p>	<p>(Not actual data)</p> <div style="text-align: center;"> <p><b>% of Jobs Within 1/4 Mile of Bus and 1/2 Mile of Fixed-Guideway</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year/Target</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>64%</td> </tr> <tr> <td>2045e+c</td> <td>64%</td> </tr> <tr> <td>2045</td> <td>78%</td> </tr> <tr> <td>Good</td> <td>80%</td> </tr> <tr> <td>Better</td> <td>85%</td> </tr> <tr> <td>Best</td> <td>90%</td> </tr> </tbody> </table> </div>	Year/Target	Percentage	2015	64%	2045e+c	64%	2045	78%	Good	80%	Better	85%	Best	90%
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2015	64%															
2045e+c	64%															
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Good	80%															
Better	85%															
Best	90%															

# ↑ Increase Transit and Non-automobile Trip Share (All Trips)

Why Increase This Share?	How to Increase Transit & Non-Motorized Share?	Trends and Targets														
<ul style="list-style-type: none"> <li>▪ <u>Reduce Pollution</u> – Automobiles are major emitters of carbon monoxide, nitrogen oxides (ozone precursor), carbon dioxide (greenhouse gas), and several other toxins that are linked to increased health ailments or climate change.</li> <li>▪ <u>Reduce Congestion</u> – The percent of congested peak travel miles in the Triangle has risen steadily the last several decades. Transit, bicycle and walking trips can replace vehicle trips to help abate the growing congestion problem.</li> <li>▪ <u>Support Personal Health</u> – Lack of exercise is a leading contributor to the obesity in the U.S.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>Transportation</u> – Increase investment in transit, bicycle and pedestrian facilities and programs.</li> <li>▪ <u>Transportation</u> – Require bicycle and pedestrian facilities on new and improved roadways, as appropriate.</li> <li>▪ <u>Ordinance</u> – Require transit, bicycle and pedestrian facilities and supportive design in new and renovated developments.</li> <li>▪ <u>Land Use</u> – Permit more concentrated residential and employment development along key travel corridors.</li> <li>▪ <u>Land Use</u> – Permit more mixed-use development.</li> <li>▪ <u>Land Use</u> – Encourage shorter block lengths and greater roadway connectivity.</li> <li>▪ <u>Policy</u> – Support TDM and Best Workplaces for Commuters</li> <li>▪</li> </ul> <p><small>Method: From Triangle Regional Model (TRM), total bicycle and pedestrian trips, divided by total trips for all modes.</small></p>	<p>(Data is from Preferred Option)</p> <div style="text-align: center;"> <h3>Transit &amp; Non-Motorized Trip Share (All Trips)</h3> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Year/Scenario</th> <th>Trip Share (%)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>18%</td> </tr> <tr> <td>2045e+c</td> <td>19%</td> </tr> <tr> <td>2045</td> <td>21%</td> </tr> <tr> <td>Good</td> <td>22%</td> </tr> <tr> <td>Better</td> <td>23%</td> </tr> <tr> <td>Best</td> <td>25%</td> </tr> </tbody> </table> </div>	Year/Scenario	Trip Share (%)	2015	18%	2045e+c	19%	2045	21%	Good	22%	Better	23%	Best	25%
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**↓ Reduce Mobile Source Emissions** (GHG, ozone, CO, and particulate matter emissions)

Why Reduce Emissions?	How to Reduce Emissions?	Trends and Targets												
<ul style="list-style-type: none"> <li>▪ <u>Support Environment</u> – Greenhouse gases are causing climate change. An estimated 39% of the greenhouse gases in Durham County are from the vehicle emissions.</li> <li>▪ <u>Reduce Pollution</u> – Pollutants such as carbon monoxide, nitrogen oxides (ozone precursor), and particulate matter are linked to increased health ailments.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>Local Initiative</u> – Support efforts of Durham greenhouse gas local action plan.</li> <li>▪ <u>Land Use</u> – Permit more concentrated residential and employment development along key travel corridors. Study concludes that 10% density increase results in 4.3% emissions reduction in urban areas.</li> <li>▪ <u>Land Use</u> – Permit more mixed-use development to reduce automobile trips.</li> <li>▪ <u>Transportation</u> – Increase investment and ordinance support for bicycle and pedestrian facilities and programs.</li> <li>▪ <u>Policy</u> – Support TDM programs to reduce roadway congestion and vehicle miles travelled.</li> </ul> <p><small>Method: Triangle Regional Model and Mobile6 emissions model; GHG based on local plan.</small></p>	<p>(Need to add ozone, CO and particulate matter graphs)</p> <div style="text-align: center;"> <p><b>Greenhouse Gas Change</b> (annual per capita emissions from transportation sector - in tons)</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Year/Target</th> <th>Annual per capita emissions (tons)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>9.6</td> </tr> <tr> <td>2045e+c</td> <td>9.5</td> </tr> <tr> <td>2045 Good</td> <td>9.0</td> </tr> <tr> <td>2045 Better</td> <td>8.6</td> </tr> <tr> <td>2045 Best</td> <td>8.1</td> </tr> </tbody> </table> </div>	Year/Target	Annual per capita emissions (tons)	2015	9.6	2045e+c	9.5	2045 Good	9.0	2045 Better	8.6	2045 Best	8.1
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2015	9.6													
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# ↓ Reduce Daily Travel Delay (per capita) (in minutes)

Why Reduce Travel Delay?	How to Reduce Travel Delay?	Trends and Targets														
<ul style="list-style-type: none"> <li>▪ <u>Reduce In-Vehicle Travel Time</u> – The Travel model estimates that the average peak-hour travel time in the western Triangle will increase 22% from 2015 to 2035.</li> <li>▪ <u>Reduce Emissions</u> – Vehicle delay produces greater amounts of emissions that increase health ailments and climate change.</li> <li>▪ <u>Support Job Opportunities</u> – Shorter travel times can increase the size of a particular labor shed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>Transportation</u> – Implement Congestion Management Program practices such as traffic signal synchronization and spot improvements at traffic bottlenecks.</li> <li>▪ <u>Transportation</u> – Increase highway, transit and other transportation mode capacity.</li> <li>▪ <u>Land Use</u> – Permit more mixed-use development.</li> </ul> <p><small>Method: Triangle Regional Model (TRM), total daily travel delay divided by the population.</small></p>	<p>(Data is from Preferred Option)</p> <div style="text-align: center;"> <h3>Daily Travel Delay (Per Capita)</h3> <p>(minutes)</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Scenario</th> <th>Delay (minutes)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>4</td> </tr> <tr> <td>2045e+c</td> <td>15</td> </tr> <tr> <td>2045</td> <td>7</td> </tr> <tr> <td>Good</td> <td>6</td> </tr> <tr> <td>Better</td> <td>5</td> </tr> <tr> <td>Best</td> <td>4</td> </tr> </tbody> </table> </div>	Scenario	Delay (minutes)	2015	4	2045e+c	15	2045	7	Good	6	Better	5	Best	4
Scenario	Delay (minutes)															
2015	4															
2045e+c	15															
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Best	4															

**↓ Reduce Vehicle Crashes (per 100 million miles traveled)**

Why Reduce Crashes?	How to Reduce Crashes?	Trends and Targets														
<ul style="list-style-type: none"> <li>▪ <u>Reduce Costs</u> – Crashes cost \$173m (million), \$226m, and 643m in losses each year, in Chatham, Orange and Durham counties, respectively.</li> <li>▪ <u>Minimize congestion and delay</u> – Crashes are a major contributor to non-recurring traffic delay.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>Transportation</u> – Invest in transportation projects that increase safety.</li> <li>▪ <u>Design</u> – Prioritize project designs that enhance motorist, pedestrian and bicyclist safety.</li> <li>▪ <u>Policies</u> – Support policies related to graduated drivers licensing, cell phone/texting, impaired driving, seat belts and booster seats, and speed limits.</li> </ul> <p style="font-size: small; margin-top: 20px;">Method: From “N.C. Crash Facts” and Traffic Engineering Accident Analysis System (TEAAS).</p>	<p>(This temporary data is for all of N.C.)</p> <div style="text-align: center;"> <p><b>Vehicle Crashes</b> (per 100 million miles traveled)</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Year/Target</th> <th>Crashes (per 100 million miles traveled)</th> </tr> </thead> <tbody> <tr> <td>2005</td> <td>220</td> </tr> <tr> <td>2010</td> <td>209</td> </tr> <tr> <td>2015</td> <td>225</td> </tr> <tr> <td>Good</td> <td>205</td> </tr> <tr> <td>Better</td> <td>200</td> </tr> <tr> <td>Best</td> <td>180</td> </tr> </tbody> </table> </div>	Year/Target	Crashes (per 100 million miles traveled)	2005	220	2010	209	2015	225	Good	205	Better	200	Best	180
Year/Target	Crashes (per 100 million miles traveled)															
2005	220															
2010	209															
2015	225															
Good	205															
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Best	180															

## ↓ Reduce Pedestrian and Bicycle Crashes (per capita)

Why Reduce Crashes?	How to Reduce Crashes?	Trends and Targets												
<ul style="list-style-type: none"> <li>Encourage active transportation – Walking and cycling have many proven benefits: has positive effects on our <u>health</u>; reduces vehicle <u>congestion</u> and <u>emissions</u>; has relatively low capital and operations <u>costs</u>; and improves transportation <u>equity</u> and <u>choice</u>.</li> </ul>	<ul style="list-style-type: none"> <li><u>Facilities</u> – The safety benefits of investing in pedestrian and bicycle facilities are significant and well documented.</li> <li><u>Education</u> – Informed pedestrians and bicyclists are less likely to be involved in a crash.</li> <li><u>Enforcement</u> – Increased enforcement has been shown to reduce crash risk for pedestrians and bicyclists.</li> </ul> <p>Method: From “N.C. Crash Facts.”</p>	<p style="text-align: center;"><b>Bicycle and Pedestrian Crashes</b> (per 100,000 population)</p> <table border="1"> <caption>Bicycle and Pedestrian Crashes (per 100,000 population)</caption> <thead> <tr> <th>County</th> <th>Current 5-year average</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Chatham</td> <td>13</td> <td>10</td> </tr> <tr> <td>Durham</td> <td>51</td> <td>40</td> </tr> <tr> <td>Orange</td> <td>34</td> <td>25</td> </tr> </tbody> </table>	County	Current 5-year average	Target	Chatham	13	10	Durham	51	40	Orange	34	25
County	Current 5-year average	Target												
Chatham	13	10												
Durham	51	40												
Orange	34	25												



## ↓ Reduce Truck Delay (minutes per trip)

Why Reduce Truck Delay?	How to Reduce Truck Delay?	Trends and Targets														
<ul style="list-style-type: none"> <li>▪ <u>Support Economic Development</u> – Travel model estimates that truck delay will increase fourfold from 2015 to 2045 without additional transportation investments.</li> <li>▪ <u>Reduce Emissions</u> – Truck delay produces greater amounts of emissions that increase health ailments and climate change.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>Transportation</u> – Implement Congestion Management Program practices such as traffic signal synchronization and spot improvements at traffic bottlenecks.</li> <li>▪ <u>Transportation</u> – Increase highway investments on major roadways.</li> <li>▪ <u>Land Use</u> – Permit more mixed-use development.</li> </ul> <p style="font-size: small; margin-top: 20px;">Method: Triangle Regional Model (TRM), total daily truck delay divided by the number of truck trips.</p>	<p>(Data is from Preferred Option)</p> <div style="text-align: center;"> <p><b>Truck Delay</b> (minutes per trip)</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Scenario</th> <th>Truck Delay (minutes per trip)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>2</td> </tr> <tr> <td>2045e+c</td> <td>8</td> </tr> <tr> <td>2045</td> <td>4</td> </tr> <tr> <td>Good</td> <td>4</td> </tr> <tr> <td>Better</td> <td>3</td> </tr> <tr> <td>Best</td> <td>2</td> </tr> </tbody> </table> </div>	Scenario	Truck Delay (minutes per trip)	2015	2	2045e+c	8	2045	4	Good	4	Better	3	Best	2
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